Multi Tasker®

MANUAL PART NUMBER: 400-0367-005

MT107-103

64X64 AUDIO MATRIX

SWITCHER CARD

USER'S GUIDE

ALTINEX

SiGNAL
MANAGEMENT
SOLUTIONS

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ALTINEX

SiGNAL MANAGEMENT SOLUTIONS

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PRECAUTIONS / SAFETY WARNINGS   1

Please read this manual carefully before using your **MT107-103**. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **MT107-103** and to prevent fire and shock hazards. Please read them carefully and heed all warnings.

1.1 GENERAL

- Qualified ALTINEX service personnel or their authorized representatives must perform all service.

1.2 INSTALLATION

- To prevent fire or shock, do not expose this unit to water or moisture. Do not place the **MT107-103** in direct sunlight, near heaters or heat-radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.

- Handle the **MT107-103** carefully. Dropping or jarring can damage the card.

- Do not pull any cables that are attached to the **MT107-103.**

- Insert the card carefully into the slots of the MultiTasker without bending any edges.

1.3 CLEANING

- Clean only the connector area with a dry cloth. Never use strong detergents or solvents such as alcohol or thinner. Do not use a wet cloth or water to clean the card. Do not clean or touch any component or PCB.

1.4 FCC NOTICE

- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions found herein, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

ABOUT YOUR MT107-103   2

MT107-103
64 X 64 Audio Matrix Engine

The **MT107-103** is a 64X64 Matrix Engine used for connecting balanced audio signals. The Matrix Engine has 8 balanced audio inputs and 8 balanced audio outputs built-in. Additional inputs and outputs may be added using input and output audio expansion cards. The expansion cards are mounted to the engine with specially provided cables.

The audio input signals are buffered to the matrix switcher through individual differential line receivers. The **MT107-103** will accept balanced or unbalanced inputs. The input preset and mute controls may be applied to any individual input and are software-controlled for flexibility.

All control of the Matrix Engine is maintained through the MultiTasker enclosure. The engine may be controlled using the RS-232 bus, or by preprogramming the MultiTasker enclosure. Programming the enclosure eliminates the need for having an external computer to control the Matrix Engine.

An audio signal detection circuit is present on all inputs and outputs in order to make troubleshooting easier. Each of the outputs is driven by a balanced audio line driver. The output impedance is low and is capable of driving signals into 600Ω, including applications requiring long cable lengths.

The Matrix Engine may be easily configured to meet customer requirements by selecting the appropriate number of switching elements. Selecting the proper configuration may be achieved using AVSnap® or other control software. The switching elements within the matrix switcher are available in steps of 16 and made possible through the modular design of the Matrix Engine.

TECHNICAL SPECIFICATIONS   3

Specifications are subject to change.
See www.altinex.com for up-to-date information.

FEATURES/DESCRIPTION	MT107-103
GENERAL	
Inputs	8 (2 per block)
Input Connectors	5-pin term. block
Outputs	8 (2 per block)
Output Connector	5-pin term. block
Compatibility	
Signal types	Balanced Audio

Table 1. **MT107-103** General

MECHANICAL	MT107-103
Enclosure Slots (engine only)	2
Enclosure Slots (add-ons)	1 per card
Weight	1.1 lb (0.5 kg)
Connector Panel	Black Anodized
T° Operating	10°C-50°C
T° Maximum	75°C
Humidity	90% non-condensing
MTBF (calc.)	50,000 hrs

Table 2. **MT107-103** Mechanical

ELECTRICAL	MT107-103
Input Signals	
Impedance	10 kΩ
Analog Signal Level	0 dBu
Output Signals	
Impedance Analog	Drives 600Ω
Gain	6dB +/-0.5dB
Frequency Response	10Hz to 20KHz +/- 0.5dB
Power (from enclosure)	
+6V	0.200 A (1.2 W)
-6V	0.100 A (0.6 W)
+13V	0.325 A (4.2 W)
-13V	0.325 A (4.2 W)
Total Power	10.2 W max.

Table 3. **MT107-103** Electrical

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PRODUCT DESCRIPTION **4**

TOP RETAINER SCREWS

MT107-103

INTPUT

OUTPUT

8

AUDIO INPUTS

8

AUDIO OUTPUTS

AUDIO MATRIX ENGINE

BOTTOM RETAINER SCREWS
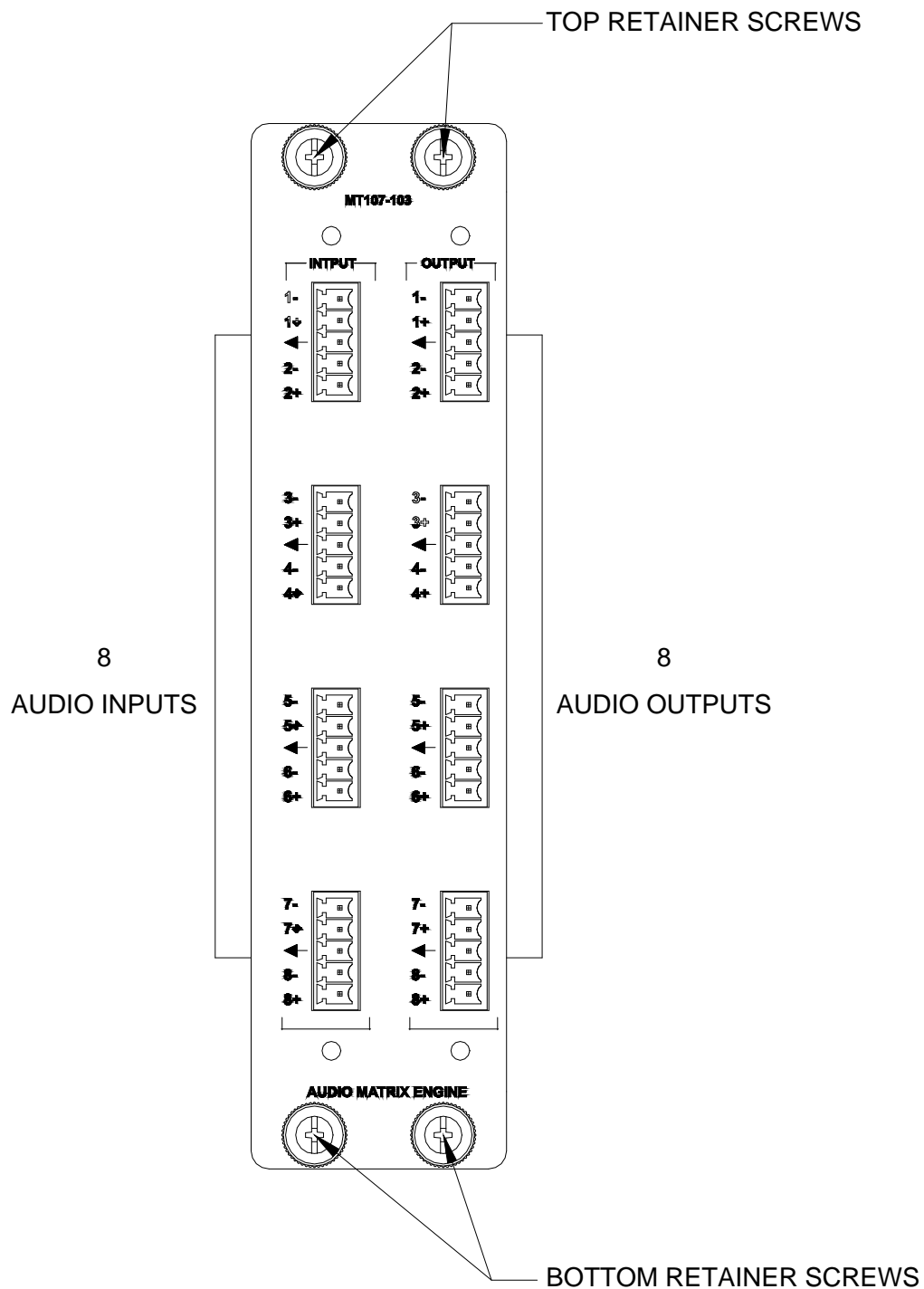
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DIAGRAM 1: TYPICAL CONFIGURATION

MT107-103

DIAGRAM 2 INTERNAL VIEW

MT107-103, 64X64 Audio Matrix Engine

INSTALLING YOUR MT107-103   6

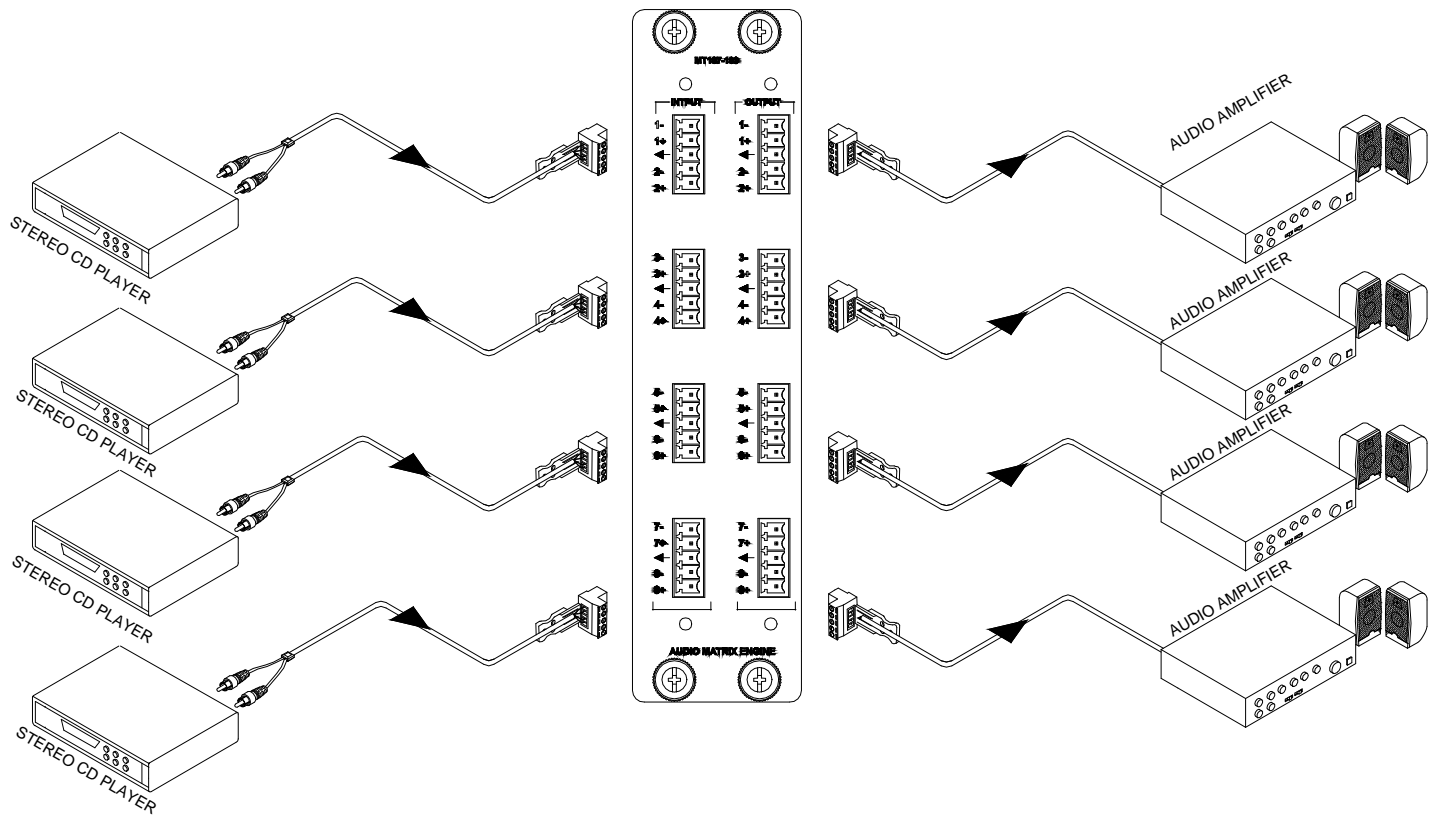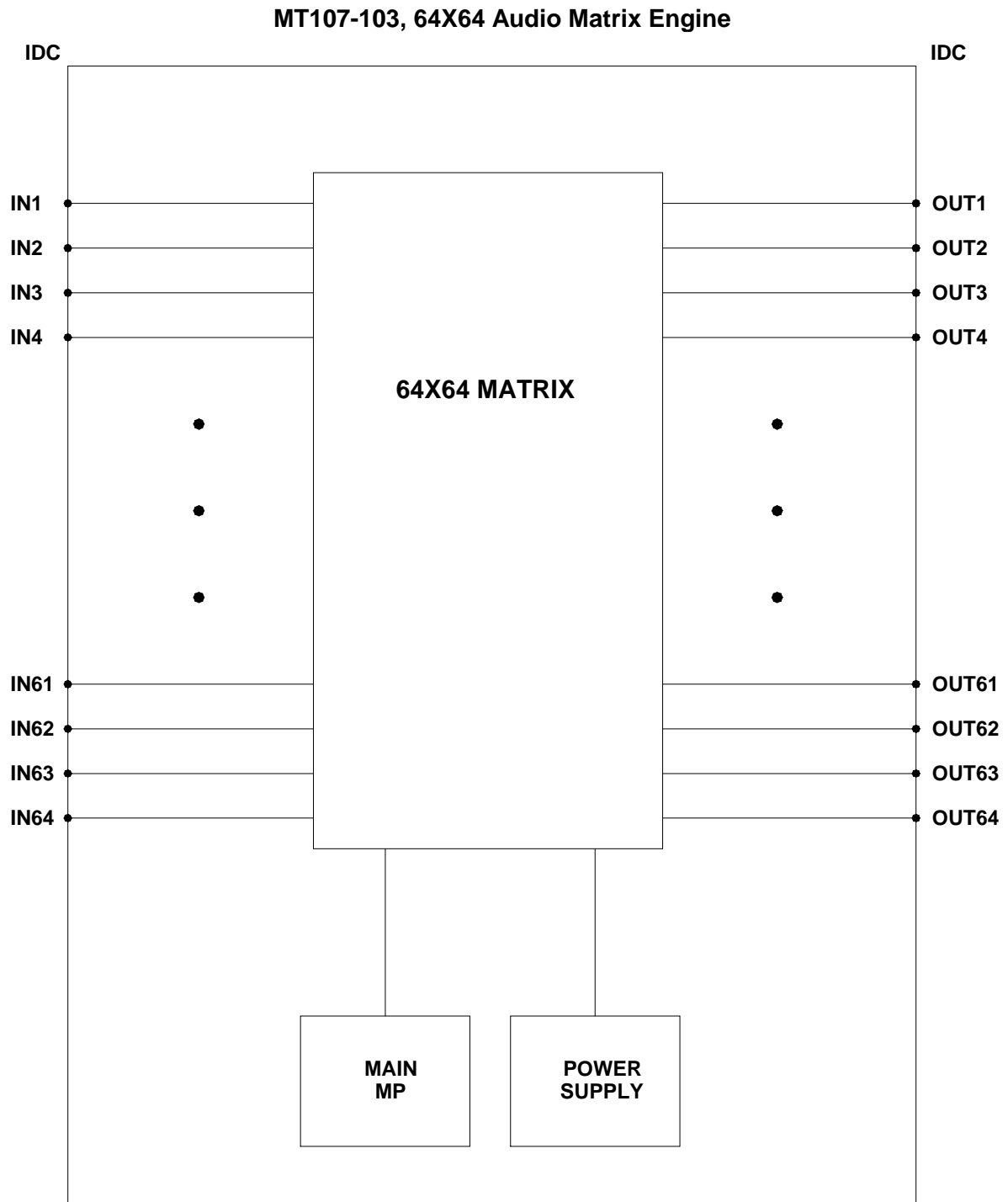**Step 1.** Determine the number of slots required for the **MT107-103**, including the add-on cards. The base **MT107-103** requires two slots, and a fully loaded 64X64 Matrix Engine requires 16 slots.

Step 2. Turn off power to the MultiTasker system and disconnect from AC power.

Step 3. Carefully, slide the **MT107-103** into available slots in the MultiTasker enclosure in order to connect to the bus. Make sure that the **MT107-103** cards fit into place.

Step 4. Secure the cards to the MultiTasker by tightening the retainer screws located on the top and bottom of each card.

Step 5. Connect a cable from an audio source to one of the input connectors on the **MT107-103** and another cable from an output connector to a receiving device.

Step 6. Starting from the left, identify the slot number where the **MT107-103**'s Input Connector Card is plugged into the enclosure.

The Input Connector Card is the circuit card on the left-hand side of the engine as it is being installed. Make note of the slot number. It is required for RS-232 control.

Step 7. Restore power to the MultiTasker system.

Step 8. The **MT107-103** is now operational.

OPERATION   7

7.1 RS-232 CONTROL

The **MT107-103** has many advanced remote-control capabilities accessible through standard RS-232 communication. Control may be accomplished through a computer, control system, or any device capable of RS-232 communication.

7.1.1 RS-232 INTERFACE

The control commands for the **MT107-103** are in a simple ASCII character format.

1. Square brackets "[ ]" are part of the command.
2. Use uppercase letters for all commands.
3. Spaces are not legal characters.

The cards in a MultiTasker are capable of performing various functions, as well as providing feedback to the user or control system. Commands instruct a card to perform specific actions or request information from the card. Some commands do both simultaneously.

A command that instructs the card only to perform an action will generate feedback of "[ ]". The open bracket immediately followed by a closed bracket indicates the card received a valid command. If the command requested information from the card, the feedback generated by the card is the acknowledgement of having received a valid command. Invalid commands generate feedback that includes "ERR" plus an error code.

Example: [ERR001]

After processing a command, an "OK" or error will be returned as feedback if "F" is included at the end of a command string.

Commands ending in "S" will be saved into memory. Commands not ending in "S" will still be executed, but will not be restored when the system is reset or powered off, then on.

7.2 DESCRIPTION OF COMMANDS

Each command consists of three parts: Function, Card ID, and Unit ID.

[Function , Card ID , Unit ID **]**

Example: [VERC3U2]

VER = Function
C3 = Card ID or Group ID
U2 = Unit ID (optional for Unit ID 0)

For Function, see a detailed explanation under each command description.

The card ID is a unique identifier. It is equal to the enclosure slot number, or it may be an assigned value. As the slot number, the value can range from 1-4 up to 1-20 depending on the enclosure. If the value is assigned, the ID may be a maximum of 99. Card ID 0 (C0) is used for the controller and cannot be reassigned.

The group ID is a number representing a group of cards defined with the [WR] command. When using the group ID, all cards in the group will perform the given instruction.

NOTE: In this guide, cards are referenced by their IDs (C1, C2...C99). Typically, the ID number will be equivalent to the slot number. Groups will be referenced by their IDs (G1-G8).

Changing the position of a card will significantly affect the commands recorded on software definitions or third-party control systems.

The unit ID has a range from U0 to U20. U0 should be used for single unit operation. If the ID is set to U0, each command may be used without Ui. Use the command [SETU0], as explained in the MT101-101 User's Guide.

Example:

[VERC3]:   For U0
[VERC3Ui]: For ID other than U0
[VERC3]:   Equivalent to [VERC3U0]

COMMAND ORGANIZATION

The COMMAND SUMMARY (Section 7.3) gives one-line descriptions of each command. Commands in this section are organized into 6 groups:

Basic Commands

Feedback Control

Matrix Setup

Card Control

Card IDs

Groups

NOTE: Large Command Blocks

Disable the **MT107-103**'s feedback prior to sending more than 10 commands to the card in a single burst with no delays between characters or commands. See the [AFB] command for details.

BASIC COMMANDS

The basic commands are used to provide general information about the card. These commands are most useful during the initial stages of setting up and operating the card.

1. **[VER]**

   This command displays the firmware version and model number for the **MT107-103** card.

   Command Format: [VERCn]

   Cn = Card ID (n = slot # from 1 to max slots)

   Example:

   There is an **MT107-103** card in slot 8. Send the command [VERC8] and card will return the following feedback:

   [MT107-103 690-0159-010 C08]

   MT107-103   = the card model

   690-0159-010 = the software version

   C08   = card ID number

2. **[C]**

This command displays the active matrix configuration, input-to-output connections, and output on/off status.

Command Format: [Cn]

Cn = Card ID (n = slot # from 1 to max slots)

Example:

There is an **MT107-103** in slot 8. Send [C8] and the card will return feedback in the following format:

```
Matrix mode:non-blocking
Matrix number:1
Matrix size:64X64
Input offset:0
Output offset:0
Channel width:1
Channel space:0

OUT
 1-8 :    1   1   1   1   1x  1x  1x  1x
 9-16 :    9x 10x 11x 12x 13x 14x 15x 16x
17-24 :   17x 18x 19x 20x 21x 22x 23x 24x
25-32 :   25x 26x 27x 28x 29x 30x 31x 32x
33-40 :   33x 34x 35x 36x 37x 38x 39x 40x
41-48 :   41x 42x 43x 44x 45x 46x 47x 48x
49-56 :   49x 50x 51x 52x 53x 54x 55x 56x
57-64 :   57x 58x 59x 60x 61x 62x 63x 64x
```

Description of Feedback:

The first line of the status shows the matrix in non-blocking mode (see [MODE] command for details). The next line lists the matrix number followed by 5 lines that describe the properties of the matrix. The second half of the status, the remaining 8 lines, shows the input-to-output connections and the output on/off status.

In the above example, Matrix 1 is the active matrix and is configured as a 64X64 matrix with no input or output offset. The channel width is 1, and the channel spacing is 0, so each of the 64 inputs and outputs are switched individually.

The last 8 lines of the status are the connection settings, and each output on/off status. The top line shows the inputs that are connected to Outputs 1-8 and the next line shows the inputs that are connected to Outputs 9-16, and so on. The lowercase "x" next to the input number indicates that its output is turned off. In this case, Input 1 is connected to Outputs 1-8, Output 9 is connected to Input 9, Output 10 to Input 10, and so on. Outputs 5-64 are turned off.

3. **[CnS]**

This command saves the input-to-output connections and on/off settings. This configuration will be restored after the system is reset or powered off, then back on.

Command Format: [CnS]

Cn = Card ID (n = # from 1 to max slots)

S = save configuration

Example:

Save the setup from the example in the previous command by sending [C8S]. The feedback would be as follows:

```
VIS:OFF
Matrix mode:non-blocking
Matrix number:1
Matrix size:64X64
Input offset:0
Output offset:0
Channel width:1
Channel space:0

OUT
 1-8 :    1   1   1   1   1x  1x  1x  1x
 9-16 :    9x 10x 11x 12x 13x 14x 15x 16x
17-24 :   17x 18x 19x 20x 21x 22x 23x 24x
25-32 :   25x 26x 27x 28x 29x 30x 31x 32x
33-40 :   33x 34x 35x 36x 37x 38x 39x 40x
41-48 :   41x 42x 43x 44x 45x 46x 47x 48x
49-56 :   49x 50x 51x 52x 53x 54x 55x 56x
57-64 :   57x 58x 59x 60x 61x 62x 63x 64x

 [SAVED]
```

4. **[…S] – Save**

   This command will save the configuration command being sent in memory. Send the command [I1O1C8S] to the engine. After reset or power-up, Input 1 will be connected to Output 1 of the engine in slot 8.

5. **[SIO]**

   This command displays the logical input-to-output connections and their status.

   Command Format: [SIOCn]

   Cn = Card ID (n = slot # from 1 to max slots)

   Example:

   Send the command [SIOC8] to the **MT107-103** in slot 8 and the card will respond with feedback similar to the following:

       Ch1 In1 Out1 ON
       Ch1 In1 Out2 ON
       Ch1 In1 Out3 ON
       Ch1 In1 Out4 ON
       Ch1 In1 Out5 OFF
       Ch1 In1 Out6 OFF
       Ch1 In1 Out7 OFF
       Ch1 In1 Out8 OFF
       Ch1 In9 Out9 OFF
       etc.
       Ch1 In61 Out61 OFF
       Ch1 In62 Out62 OFF
       Ch1 In63 Out63 OFF
       Ch1 In64 Out64 OFF

   Notice that each input-to-output connection is preceded by the channel number. For example, "Ch1 In1 Out1 ON" indicates that channel 1 of Input 1 is connected to channel 1 of Output 1. If the matrix is configured with multiple channels, each channel is displayed on its own line. For example, if each input and output had 2 channels, the display would be:

       Ch1 In1 Out1 ON
       Ch2 In1 Out1 ON

6. **[CLR]**

   This command resets the **MT107-103** to the last saved matrix configuration. It does not affect the blocking mode or VIS settings.

   Command Format: [CLRCn]

   Cn = Card ID (n = slot # from 1 to max slots)

   Example:

   Clear the **MT107-103** with engine card in slot 8 by sending [CLRC8].

7. **[TEST]**

   This command performs a series of internal tests on the matrix engine memory.

   Command Format: [TESTCn]

   Cn = Card ID (n = slot # from 1 to max slots)

   Upon completion, the system will display the results. This feedback will be similar to the following, otherwise failures will be indicated.

   MEMORY IC TEST RESULTS:

   MEMORY IC PASS

8. **[HELP]**

   This command displays information available for the MultiTasker interface commands.

   Command Format: [HELPCn]

   Cn = Card ID (n = slot # from 1 to max slots)

   Example:

   In order to display the RS-232 commands available for the **MT107-103** in slot 8, send the command [HELPC8]. The commands along with a brief description will be displayed.

FEEDBACK CONTROL

The next commands are a function of both the card and the front panel and allow flexibility over when and how card information is displayed.

9. **[FBD]**

    This command turns feedback delay on or off. It is necessary when installing some newer cards in older systems. If the system does not receive all of the feedback from the card, the card may be communicating too fast. This command will slow down the card's communication rate.

    Command Format: [FBDm]

    m   = Delay (0= no delay, 1= delay 100mS)

    Example:

    The command [HELPC8] is sent to the card in slot 8. Some of the HELP file is displayed on the screen, but most is missing. Send the command [FBD1] to slow down the rate at which the card sends feedback to the system.

10. **[?]**

    This command displays general information about a MultiTasker and its installed cards.

    Command Format: [?Ui]

    Ui   = Unit ID (i = from 0 to 20)

    Example:

    A MultiTasker with unit ID 1 has a front panel with model number MT101-101, and contains an MT107-103 in slot 8. Send the command [?U1] and receive the following feedback:

    [(MT101-101U1)(MT107-103C08)]

    MT101-101U1   = Panel number/unit ID

    MT107-103C08 = MT107-103 is in slot 8

11. **[?C]**

    This command displays general information about a card and its status.

    Command Format: [?Cn]

    Cn = Card ID (n = # from 1 to max slots)

Example:

The **MT107-103** in slot 8 has Input 1 connected to all outputs. Outputs 1-4 are on, and 5-64 are off. Send [?C8] to display the feedback status.

All status feedback is enclosed in brackets, "[ ]". Each data field within the status is enclosed in parentheses. The first two characters identify the status type. The last three characters are the card's ID.

FEEDBACK DESCRIPTION
See Figure 1 for details on Matrix Configuration, Connections, and Input Volume.

[	= Begin feedback
(MT107-103C08)	= Model number
(VR690-0159-010C08)	= Firmware version
(ME1646400000100C08)	= Configuration
(MA010101…C08)	= Connections 01-16
(MB010101…C08)	= Connections 17-32
(MC010101…C08)	= Connections 33-48
(MD010101…C08)	= Connections 49-64
(ON111100…C08)	= Output Status 01-32
(OL000000…C08)	= Output Status 33-64
(VV0C08)	= VIS (1=On, 0=Off)
(MM0C08)	= Blocking (1=On, 0=Off)
(VA323232…32C08)	= Input volume 01-16
(VB323232…32C08)	= Input volume 17-32
(VC323232…32C08)	= Input volume 33-48
(VD323232…32C08)	= Input volume 49-64
]	= End feedback

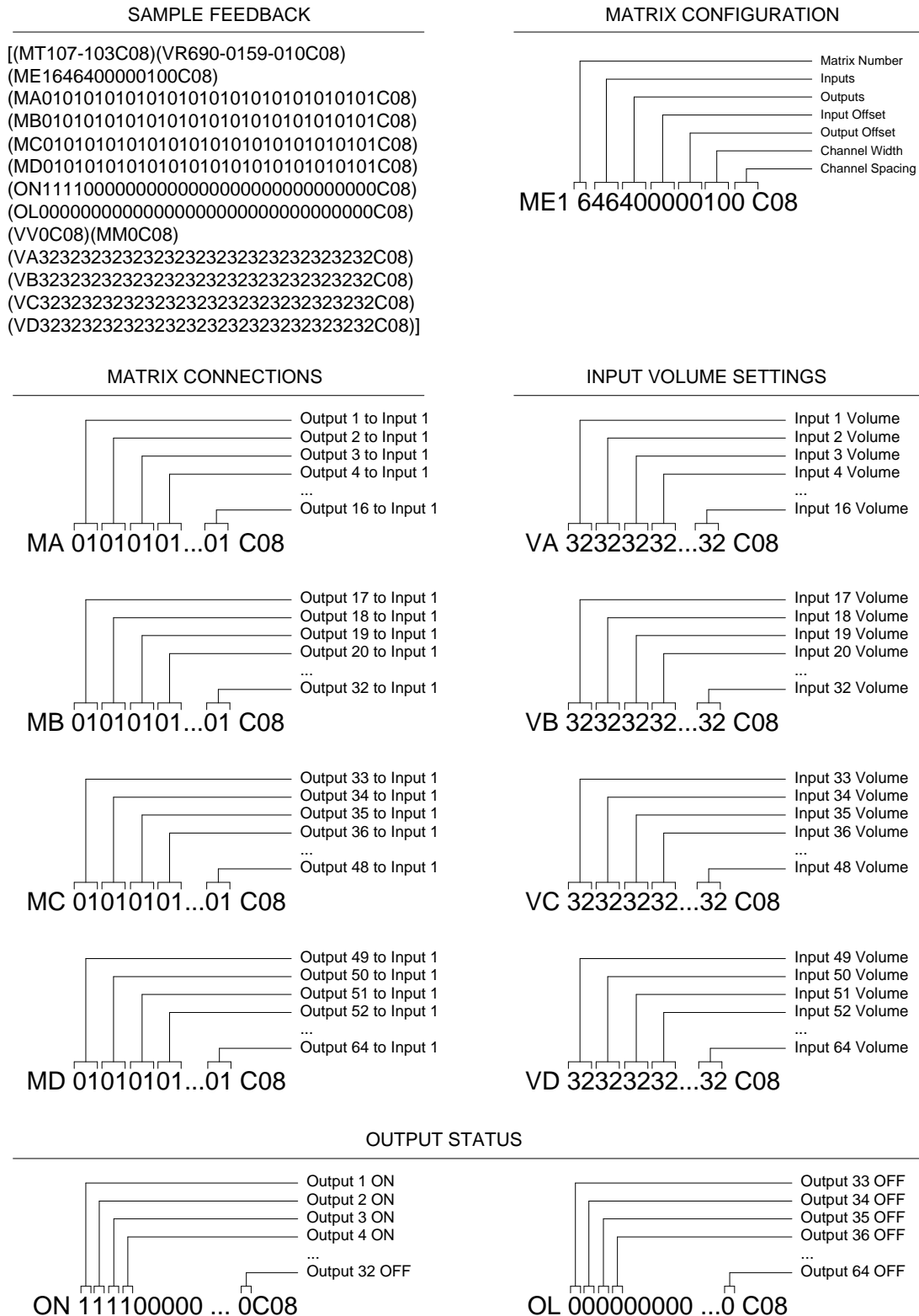NOTE: VIS information only applies to video cards.

SAMPLE FEEDBACK

[(MT107-103C08)(VR690-0159-010C08)
(ME1646400000100C08)
(MA010101010101010101010101010101C08)
(MB010101010101010101010101010101C08)
(MC010101010101010101010101010101C08)
(MD010101010101010101010101010101C08)
(ON111100000000000000000000000000C08)
(OL000000000000000000000000000000C08)
(VV0C08)(MM0C08)
(VA323232323232323232323232323232C08)
(VB323232323232323232323232323232C08)
(VC323232323232323232323232323232C08)
(VD323232323232323232323232323232C08)]

MATRIX CONFIGURATION

Matrix Number
Inputs
Outputs
Input Offset
Output Offset
Channel Width
Channel Spacing

ME1 646400000100 C08

MATRIX CONNECTIONS

Output 1 to Input 1
Output 2 to Input 1
Output 3 to Input 1
Output 4 to Input 1
...
Output 16 to Input 1

MA 01010101...01 C08

Output 17 to Input 1
Output 18 to Input 1
Output 19 to Input 1
Output 20 to Input 1
...
Output 32 to Input 1

MB 01010101...01 C08

Output 33 to Input 1
Output 34 to Input 1
Output 35 to Input 1
Output 36 to Input 1
...
Output 48 to Input 1

MC 01010101...01 C08

Output 49 to Input 1
Output 50 to Input 1
Output 51 to Input 1
Output 52 to Input 1
...
Output 64 to Input 1

MD 01010101...01 C08

INPUT VOLUME SETTINGS

Input 1 Volume
Input 2 Volume
Input 3 Volume
Input 4 Volume
...
Input 16 Volume

VA 32323232...32 C08

Input 17 Volume
Input 18 Volume
Input 19 Volume
Input 20 Volume
...
Input 32 Volume

VB 32323232...32 C08

Input 33 Volume
Input 34 Volume
Input 35 Volume
Input 36 Volume
...
Input 48 Volume

VC 32323232...32 C08

Input 49 Volume
Input 50 Volume
Input 51 Volume
Input 52 Volume
...
Input 64 Volume

VD 32323232...32 C08

OUTPUT STATUS

Output 1 ON
Output 2 ON
Output 3 ON
Output 4 ON
...
Output 32 OFF

ON 111100000 ... 0C08

Output 33 OFF
Output 34 OFF
Output 35 OFF
Output 36 OFF
...
Output 64 OFF

OL 000000000 ...0 C08

Figure 1

ALTINEX

12. **[AFB]**

This command enables/disables the command acknowledgement feedback, "[ ]", from the **MT107-103.** This setting is automatically saved to memory and can only be changed by sending the [AFB] command a second time. Use this command when sending a large number of commands to the **MT107-103** at the same time. If monitoring feedback to keep track of events, the [ACK] command can be used to notify the system an event has occurred by sending the [ACK] command last.

Command Format: [AFBmCn]

m = 1 for ON, 0 for OFF

Cn = Card ID (n = # from 1 to max slots)

Example:

Send 16 commands to the **MT107-103** in slot 8 to initialize the card with Input 1 to Output 1, Input 2 to Output 2, and so on. The required commands are as follows:

  [I1O1C8],
  [I2O2C8],
  etc.

Send the [AFB] command first, and then the switching commands.

  [AFB0C8],
  [I1O1C8],
  [I2O2C8],
  etc.
  [I16O16C8]
  [ACKC8]

In the above example, the brackets, "[ ]", will not be displayed after each command is executed. However, in order to notify a user or controller that the last command has been executed, the [ACK] command is sent last. Since each command is executed in order, the [ACK] command is used to display the brackets, "[ ]", at the end of the command group.

13. **[ACK]**

This command displays the open and closed brackets, "[ ]", and is intended for use when feedback is disabled.

Command Format: [ACKCn]

Cn = Card ID (n = # from 1 to max slots)

Example:

See the [AFB] example for details.

14. **[STA1]**

This command enables automatic feedback from the front panel. The command affects any card with auto-feedback capability, not just the **MT107-103**. The default at power on or reset is STA0, off. For more details, see the [?Cn] command definition.

Command Format: [STA1]

Feedback Prefix Definitions:

MT = Model Number
VR = Firmware Version
ME = Input Selected
MA = Output Connections 01-16
MB = Output Connections 17-32
MC = Output Connections 33-48
MD = Output Connections 49-64
ON = Output Status 01-32
OL = Output Status 33-64
VV = VIS On/OFF
MM = Blocking ON/OFF
VA = Input Volume 01-16
VB = Input Volume 17-32
VC = Input Volume 33-48
VD = Input Volume 49-64
NOTE: The VIS settings apply to video cards only.

Example 1:

Command = [ON1C8]

Feedback = (ON11110000…C08)

ON = Output status

11110000 = Output ON/OFF

Outputs 1-4 are on, 5-8 are off, and 9-16 are not shown.

C08 = Card slot number

Example 2:

Command = [MODE=0C8]

Feedback = (MM0C08)

MM = Blocking mode

0 = Non-blocking

C08 = Card slot number

15. **[STA0]**

This command disables automatic feedback from the card and front panel. The command affects any card with auto-feedback capability, not just the **MT107-103**. The default at power-on or reset is STA0, OFF.

Command Format: [STA0]

16. **[...F] – FEEDBACK**

After processing a command, an OK or [ERR001] will be returned as feedback if "F" is included at the end of a command string.

Send command with AFB on and without "F":

[I1O*C8] [ ]

Send command with AFB off and without "F":

[I1O*C8]

Send command with AFB on and with "F":

[I1O*C8F] OK

Send command with AFB off and with "F":

[I1O*C8F] OK

MATRIX SETUP

The matrix setup commands define the size and configuration of a matrix. Several matrices can be defined for a single engine, although only one is typically used.

17. **[MAT]**

This command sets the matrix configuration for the matrix engine. The properties shown in 2-digit format <u>MUST</u> be entered in 2-digit format.

Command Format:

[MATj;mm;ww;xx;yy;kk;ll;CnS]

j = Matrix ID (j = # from 1 to 9)

mm = Inputs (2-digit # from 01-64)

zz = Outputs (2-digit # from 01-64)

xx = Input offset (2-digit # from 00-99)

yy = Output offset (2-digit # from 00-99

kk = Channel width (2-digit # from 01-32)

ll = Channel spacing (2-digit # from 00-31)

Cn = Engine card slot number

(The left-most slot number of the engine card is the slot number to use.)

S = Save

This property saves the configuration to memory, and allows the configuration to be recalled any time, even after power-up or reset.

Adding the "S" to the command will also make the matrix configuration the default at power-up. The last configuration ID created and saved will be the default at power-up.

In order to change the power-up default without having to redefine the settings, see the command [MjCnS].

Matrix Configuration Definitions:

Matrix ID: A total of 9 matrix configurations may be defined in a single engine. Once saved, the configuration may be recalled by number without having to redefine the settings.

Number of Inputs: The number of inputs in the configuration, or eight times the number of input cards installed, is the maximum.

If the channel width and spacing are different, then the number of inputs will be lower. For example, in a 32X32 matrix with a width of 4 and a spacing of 7, the number of inputs would be 8. See Example 1 in this section for specifics.

Number of Outputs: *Same as for Inputs.*

Input Offset: The offset defines where Input #1 will be in reference to Input #1 on the Input Connector Card. Typically, Input #1 would be Input #1 of the base card. However, an offset of 8 will make Input #1 start at the actual Input #9.

Output Offset: Same as for Input Offset.

Channel Width: The number of signals per channel. The default width is one.

Channel Spacing: The default spacing is zero. When dealing with multi-cabled signals, the spacing is typically one less than the number of inputs on a single card.

Matrix Assembly Layout:

Input cards count from the main Input Connector Card, right-to-left.

Output cards count from the main Output Connector Card, left-to-right.

The following table illustrates the card and channel numbering. The channel numbering is based upon the default configuration. The default configuration is configured as a 64X64 Matrix with the following settings:

Number of Inputs = 64

Number of Outputs = 64

Input Offset = 00

Output Offset = 00

Channel Width = 01

Channel Spacing = 00

Default Configuration

INPUT CARDS				OUTPUT CARDS				
8	…	3	2	1	1	2	3	…	8
Add On		Add On	Add On	Base Unit	Base Unit	Add On	Add On		Add On
57		17	9	1	1	9	17		57
58		18	10	2	2	10	18		58
59	ç	19	11	3	3	11	19	è	59
60		20	12	4	4	12	20		60
61		21	13	5	5	13	21		61
62		22	14	6	6	14	22		62
63		23	15	7	7	15	23		63
64		24	16	8	8	16	24		64

Example 1: [MAT1;08;08;00;00;04;07;C8S]

Inputs = 08

Outputs = 08

Input Offset = 00

Output Offset = 00

Width = 04

Spacing = 07

In the charts below, the cards are in groups of four to help illustrate channel width.

In this configuration, if Input 1 is connected to Output 8, the entire channel, 1a, 1b, 1c and 1d, will be switched to outputs 8a, 8b, 8c and 8d respectively.

Input Cards				Output Cards			
4	3	2	1	1	2	3	4
1d	1c	1b	1a	1a	1b	1c	1d
2d	2c	2b	2a	2a	2b	2c	2d
3d	3c	3b	3a	3a	3b	3c	3d
4d	4c	4b	4a	4a	4b	4c	4d
5d	5c	5b	5a	5a	5b	5c	5d
6d	6c	6b	6a	6a	6b	6c	6d
7d	7c	7b	7a	7a	7b	7c	7d
8d	8c	8b	8a	8a	8b	8c	8d

Example 2: [MAT1;16;16;00;00;02;00;C8S]

Inputs = 16
Outputs = 16
Input Offset = 00
Output Offset = 00
Width = 02
Spacing = 00

In this configuration, if Input 1 is connected to Output 16, the entire channel, 1a and 1b, will be switched to outputs 16a and 16b respectively.

Input Cards				Output Cards			
4	3	2	1	1	2	3	4
13a	9a	5a	1a	1a	5a	9a	13a
13b	9b	5b	1b	1b	5b	9b	13b
14a	10a	6a	2a	2a	6a	10a	14a
14b	10b	6b	2b	2b	6b	10b	14b
15a	11a	7a	3a	3a	7a	11a	15a
15b	11b	7b	3b	3b	7b	11b	15b
16a	12a	8a	4a	4a	8a	12a	16a
16b	12b	8b	4b	4b	8b	12b	16b

18. **[M*j*C*n*]**

This command selects the matrix to be active.

Command Format: [MjCn]

j = Matrix ID (j = # from 1 to 9)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

There is a Matrix Engine in slot 8. Send the command [M1C8] to recall the Matrix 1 configuration of C8.

RECALL MATRIX ON POWER-UP

In order to make Matrix 1's configuration the default when power is turned on, send the [M1C8S]. The feedback will be similar to:

[SAVED]

19. **[MODE]**

This command sets the matrix switch mode to blocking or non-blocking. See the following examples for command functionality.

Command Format: [MODEmCn]

m = 1 = ON, 0 = OFF

Cn = Card ID (n = slot # from 1 to max slots)

Example: NON-BLOCKING

Send the command [MODE0C8] to turn off blocking for the engine in slot 8. Next, send the command [I1O*C8] to connect Input 1 to all outputs. In non-blocking mode, the inputs will be switched and the outputs will be enabled.

Example: BLOCKING ON

Send the command [I1O*C8] to connect Input 1 to all outputs. With blocking on, Input 1 will be connected to all outputs, but only output 1 will be enabled. The remaining outputs will need to be enabled using the [ON] command.

Connecting a single output results in the output being switched and enabled. For example, sending [I22O22C8] with blocking on results in Input 22 being connected to Output 22, with Output 22 being enabled.

CARD CONTROL

Card control commands allow the main functions of the card to be executed over the RS-232 bus, or from the front panel's programmable keys.

20. **[ONmm]**

This command turns on a single output.

Command Format: [ONmmCn]

mm = Output Number (mm = # from 01 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

There is an **MT107-103** in slot 8. Turn on output number 64 by sending [ON64C8].

21. **[ON]**

This command turns on all outputs.

Command Format: [ONCn]

Cn = Card ID (n = slot # from 1 to max slots)

Example:

There is an **MT107-103** in slot 8. Turn on all outputs by sending the command [ONC8].

22. **[OFFmm]**

This command turns off a single output.

Command Format: [OFFmmCn]

mm = Output Number (mm = # from 01 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

There is an **MT107-103** in slot 8. Turn off only Output 1 by sending [OFF1C8].

23. **[OFF]**

This command turns off all outputs.

Command Format: [OFFCn]

Cn = Card ID (n = slot # from 1 to max slots)

Example:

There is an **MT107-103** in slot 8. Turn off all outputs by sending [OFFC8].

24. **[ImmOxx]**

This command connects a single input to a single output.

Command Format: [ImmOxxCn]

mm = Input (2-digit # from 01 to 64)

xx = Output (2-digit # from 01 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

Connect Input 22 to Output 32 of C8 by sending [I22O32C5].

25. **[ImmO*]**

This command connects a single input to all the outputs.

Command Format: [ImmO*Cn]

mm = Input (2-digit # from 01 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

Connect Input 7 of C8 to all the outputs of C8 by sending [I07O*C8].

26. **[INmmS]**

This command displays a list of all enabled outputs that are connected to the specified input. Disabled outputs are not listed.

Command Format: [INmmSCn]

mm = Input Number (mm = # from 01 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Example 1:

There is an **MT107-103** in slot 8. Input 1 is connected to all outputs, but only Outputs 1-4 are enabled. Send the command [IN01SC8] and receive the following feedback:

   [1,2,3,4C08]

27. **[OUTmmS]**

This command displays the input number that is connected to an output if the output is enabled.

Command Format: [OUTmmSCn]

mm = Output Number (mm = # from 01 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Example 1:

There is an **MT107-103** in slot 8. Input 1 is connected to all outputs. Send the command [OUT1SC8] and receive the following feedback:

[1C08]

28. **[…P] – Path**

This command will set the path for the output, but it is not active until the switch command [SW] is executed. Commands ending in "P" are not executed immediately. The path for multiple cards or the same card can be preset.

Example 1:

Switch Input 1 to Output 2, and switch Input 2 to Output 4 simultaneously with the following commands:

[I1O2C8P]

[I2O4C8P]

[SW]

29. **[SW] – Switch**

The Switch command immediately connects inputs and outputs that were previously set with the Path command. All cards in the system that were preset with the Path command will switch at the same time, not only **MT107-103**.

See the [PATH] command for examples.

30. **[SEL]**

This command selects the path to adjust the input volume. Send this command first, then use the [+] and [-] commands to adjust the volume to the desired level.

CAUTION: This adjustment is on the input, NOT the output. If Input 1 is connected to more than one output, adjusting Input 1's volume will affect all the outputs connected to Input 1.

Command Format: [SELmmCn]

mm = Input no. (mm = # from 01 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

There is an **MT107-103** in slot 8 that requires volume adjustment on Input 2. The current volume level is 10. After sending the following commands, an optimum level of 15 is obtained:

1. [SEL02C8]

    The current volume level is 10.

2. [-] [-] [-]

    The level is now 7 and is too quiet.

3. [+] [+] [+] [+] [+] [+] [+] [+]

    The level is 15 and no further adjustments are required.

NOTE: The above example shows a typical adjustment using single steps to increase and decrease the volume. The volume can also be adjusted in steps larger than one. See the [+] and [-] commands for details.

31. **[+]**

This command increases the selected input volume in user-defined increments.

Command Format: [+], [+k]

[+] = Increment by single step

[+k] = Increment by "k" steps

Example:

There is an **MT107-103** in slot 8 that requires the volume to be increased on Input 1. Send the following commands to increase the volume by 5 steps.

[SEL01C8] [+] [+] [+] [+] [+]

or

[SEL01C8] [+5]

32. **[-]**

This command decreases the selected input volume in user-defined increments.

Command Format: [-], [-k]

[-]   = Decrement by single step

[-k] = Decrement by "k" steps

Example:

There is an **MT107-103** in slot 8 that requires the volume to be decreased on Input 1. Send the following to decrease the volume by 5 steps.

[SEL01C8] [-] [-] [-] [-] [-]

or

[SEL01C8] [-5]

33. **[VOL]**

This command sets an input volume to a user-defined value.

Command Format: [VOLmmAvCn]

mm = Input (2-digit # from 01 to 64)

Av = Volume level (v = # from 1 to 32)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

Set the input volume on Input 8 of C8 to a level of 16 out of 32 be sending [VOL08A16C8].

34. **[SDI]**

This command detects if there is a signal present on one input or all inputs.

Command Format, One Input: [SDImmCn]

Command Format, All Inputs: [SDICn]

mm = Input (2-digit # from 01 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Feedback Format: [IxxSyCn]

xx   = Input number (2 digits, 01-99)

y   = Signal present (1=signal, 0=no signal)

Cn = Card ID (n = slot # from 1 to max slots)

Example 1:

Check for a signal on Input 1 of C8 by sending the command [SDI01C8]. If there is a signal present on Input 1, the card will return the following feedback:

[I01S1C08]

Example 2:

Check for a signal on all inputs of C8 by sending the command [SDIC8]. In the example below, there is a signal on Input 1, but the rest have no signals. The **MT107-103** will return the following feedback:

[I01S1C08] [I02S0C08] [I03S0C08]
[I04S0C08] [I05S0C08] [I06S0C08]
[I07S0C08] [I08S0C08]
… [I63S0C08] [I64S0C08]

35. [SDO]

This command detects if there is a signal present on one output or all outputs. The system will return feedback along the following:

Command Format, One Output: [SDOmmCn]

Command Format, All Outputs: [SDOCn]

mm = Output (2-digit # from 01 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Feedback Format: [OxxSyCn]

xx = Input number (2-digit #, 01-64)

y = Signal present (1=signal, 0=no signal)

Cn = Card ID (n = slot # from 1 to max slots)

Example 1:

Check for a signal on Output 1 of C8 by sending [SDO01C8]. If a signal present on Output 1, the following feedback will be displayed:

[O01S1C08]

Example 2:

Check for a signal on all outputs of C8 by sending [SDOC8]. In the example below, there is a signal is present on Output 1, but the rest have no signals. The **MT107-103** will return the following feedback:

    [O01S1C08] [O02S0C08] [O03S0C08]
    [O04S0C08] [O05S0C08] [O06S0C08]
    [O07S0C08] [O08S0C08]
    … [O63S0C08] [O64S0C08]

ID COMMANDS

The default card ID is the same as the card slot number. The next several commands allow the user to change the card ID to a value other than the slot number. Once the ID is changed, moving the card to another slot will not change the card ID. If a card in slot 4 is set to ID 1, then moved to slot 10, its ID will remain 1. The [RSI] command forces each installed card to take its slot number as its ID number, regardless of the slot in which it is installed.

Some cards require more than one slot in the MultiTasker system. As an example, some matrix switcher cards require 4 slots. If 5 cards are installed, they would be numbered C4, C8, C12, C16, and C20. Changing the ID allows the user to define the cards as C1, C2, C3, C4, and C5.

Another use for changing the card ID is to be able to use multiple systems without having to set each unit to a different unit ID. All systems may be left as unit ID 0 for ease of programming. The cards in the first unit may be numbered 1-10 and in the second unit 11-20.

36. [RSI]

This command resets the card IDs in the system. After sending this command, each card ID in the system will match the slot number of the card. If the card is moved to another slot, its ID number will be the new slot number.

Command Format: [RSI]

Example:

Send the command [RSI] to the system with Unit ID 0. The card in slot 1 will have ID 1, the card in slot 2 will have ID 2, and so on. If the card in slot 1 is then moved to slot 4, the card ID will then be 4.

37. **[SIDn]**

This command sets all the cards installed in the MultiTasker system to the same card ID. After sending this command, all cards will be addressed with the same ID. Use caution when sending this command to a system with multiple board types.

Command Format: [SIDn]

n   = Card ID (n = # from 1 to 99)

Example:

Send the command [SID1] to the system. All the cards in the system now have ID 1. Any commands that are sent to card ID 1 will be received and executed by each card.

38. **[SIDnCi]**

This command sets the card ID of a single card to a number from 1 to 99.

Command Format: [SIDnCi]

n   = Card ID (n = # from 1 to 99)

Ci   = Slot Number (i = # from 1 to max slots)

Example:

Send the command [SID50C10] to set the ID of the card in slot 10 to an ID of 50.

39. **[SID+]**

This command sets the card ID of all cards in a system to their slot number plus an offset value.

Command Format: [SID+n]

n = Offset amount (n = # from 0 to 99) The maximum card ID is 99, so subtract the highest slot number from 99 to find the maximum offset. For example, in an 8-slot enclosure, the maximum offset would be 91. The slot number (8) plus the offset (91) equals 99.

Example:

There are two 20-slot enclosures to be connected together during normal operation. The first unit will use the default IDs where the card ID is equal to the slot number. The second unit will have the same unit ID, but each card ID will be offset by 20.

Connect the computer to the second unit only and send [SID+20] to set the ID of all the cards in the second enclosure to their slot number plus 20. Reconnect both units to the computer.

The cards in the first unit will be referenced as card IDs 1-20 and the cards in the second unit will be referenced by card IDs 21-40.

40. **[RSN]**

This command displays the slot number of a card with a specified ID number. If more than one card has the same ID, each slot number will be displayed.

Command Format: [RSNCi]

Ci   = Card ID (i = # from 1 to 99)

Example:

The card in slot 4 takes up four slots in the enclosure. Its ID was set to 1 since it is the first card installed in the system, reading from left to right. Send the command [RSNC1] to find the slot number of this card. The system responds with the following feedback:

[4]

GROUP COMMANDS

Group commands allow several cards with the same functions to be controlled simultaneously with a single command. Up to 8 groups (G1-G8) may be defined. These commands apply to all cards, not only the **MT107-103**.

41. [WR]

This command adds cards to a group. In MultiTasker systems with audio and video cards, the groups are typically as follows:

Group 1 = Video Cards

Group 2 = Audio Cards

Group 3 = Video and Audio Cards

Command Format: [WRCn_1Cn_2…Gk]

Cn = Card ID (n = slot # from 1 to max slots)

Gk = Group ID (k = # from 1-8)

Example:

Add C2, C4, and C6 to G5 by sending the command [WRC2C4C6G5]. After executing this command, G5 will consist of C2, C4, and C6.

Now add C8 to G5 by sending [WRC8G5]. C8 is added to G5, and G5 is not overwritten. View the contents of G5 by sending [RDG5] and receiving the following feedback:

[G5=C2C4C6C8]

42. [RMC]

This command removes one or more cards from a group.

Command Format: [RMCn_1Cn_2…Gk]

Cn = Card ID (n= # from 1 to max slots)

Gk = Group ID (k = # from 1-8)

Example:

G5 consists of C2, C4, C6, and C8. Remove C6 and C8 by sending [RMC6C8G5]. View the contents of G5 by sending [RDG5] and receiving the following feedback:

[G5=C2C4]

43. [RMG]

This command deletes one or all groups.

Command Format: [RMGk]

Gk = Group ID (k = # from 1-8, * for all)

Example:

Remove all cards from G52 by sending [RMG5]. The system will return the following feedback:

[G5=0]

Example 2:

Remove all cards from all groups, effectively deleting all groups, by sending [RMG*]. The system will return the following feedback:

G1-G8: EMPTY

44. [RD]

This command reads and then displays the members in a group.

Command Format: [RDGk]

Gk = Group ID (k = # from 1-8)

Example:

C2, C4, and C6 make up G5. Read the member data for G5 by sending the command [RDG5]. The system will return feedback as follows:

[G5=C2C4C6]

The feedback shows G5 and then the cards that make up G5. In this case, G5 includes C2, C4, and C6.

7.3 SUMMARY OF COMMANDS

Basic Commands

1)	[VER]	Display software version
2)	[C]	Display card status (short)
3)	[CnS]	Save all card settings
4)	[...S]	Save one command setting
5)	[SIO]	Display card status (long)
6)	[CLR]	Reset card to defaults
7)	[TEST]	Test internal memory ICs
8)	[HELP]	Display help file

Feedback Control

9)	[FBD]	Feedback delay on/off
10)	[?]	Display system information
11)	[?C]	Display card information
12)	[AFB]	Enable/disable feedback
13)	[ACK]	Display acknowledge, [ ]
14)	[STA1]	Enable auto-feedback
15)	[STA0]	Disable auto-feedback
16)	[...F]	Display OK after command

Matrix Setup

17)	[MAT]	Set matrix configuration
18)	[MjCn]	Select matrix configuration
19)	[MODE]	Turn blocking on/off

Card Control

20)	[ONmm]	Turn on one output
21)	[ON]	Turn on all outputs
22)	[OFFmm]	Turn off one output
23)	[OFF]	Turn off all outputs
24)	[ImmOxx]	Connect one-in to one-out
25)	[ImmO*]	Switch one-in to all-out
26)	[INmmS]	Display outputs on input
27)	[OUTmmS]	Display input on output
28)	[...P]	Preload path for [SW]
29)	[SW]	Switch preloaded path
30)	[SEL]	Set path for volume adjust
31)	[+]	Increment volume
32)	[-]	Decrement volume
33)	[VOL]	Set absolute volume
34)	[SDI]	Input signal detect
35)	[SDO]	Output signal detect

ID Commands

36)	[RSI]	Reset Card IDs to default
37)	[SIDn]	Set all Card IDs
38)	[SIDnCi]	Set one Card ID
39)	[SID+]	Set all Card IDs to an offset
40)	[RSN]	Display card slot number

Group Commands

41)	[WR]	Add card(s) to a group
42)	[RMC]	Remove card(s) from group
43)	[RMG]	Delete group
44)	[RD]	Display group members

7.4 MENU MODE

Menu Mode commands allow virtually the same functionality as programming commands. Unlike the programming commands in the previous sections, menu commands prompt the user to select from a list of available options. The system then responds based upon selections made by the user.

7.4.1 MENU COMMAND DEFINITIONS

Refer to section 7.2 for details on card functions and examples. Following is a cross-reference of menu mode sections versus programming commands.

MENU	COMMAND
Matrix Setup	[MATj;mm;tt;xx;yy;kk;ll;C*n*]
Select Matrix	[MjC*n*]
Out On/Off	[ONC*n*], [OFFC*n*]
Connect	[ImmOxxCn], [ImmO*C*n*], [SW]
Signal Detect	[SDImmC*n*], [SDOmmC*n*]
Version	[VER]
Status	[C*n*]
HELP	[HELP]
Save Settings	[C*n*S], [..S]

7.4.2 USING MENU MODE

Do NOT press any keys except those relating to the current menu. If you press the ENTER key after entering a letter or digit, the original list of systems will be displayed.

1. In order to enter Menu Mode, the system needs to be connected to a computer running RS-232 control software.

2. In the Terminal Window, press the ENTER key on the keyboard.

3. The system checks all MultiTaskers on the RS-232 bus and displays a list of available systems.

    Example: 1: U1
                 2: U2
                 3: U3

4. Enter the ID number of the desired system. In the example above, enter a "1" for the MultiTasker with unit ID 1.

5. The system then interrogates all the cards available in its enclosure and displays a list of available cards.

    Example: 01: MT103-122
                 02: MT103-123
                 08: MT107-103

6. Enter the 2-digit ID and a menu for the card will be displayed. In the example above, enter "08" for the **MT107-103**.

7. The system will prompt for selections specific to the selected card.

8. Read each menu carefully, and continue selecting keys as prompted.

NOTE: Menus for data entry have two prompts: "Key=" and "ESC" (escape). Press the escape key to return to the previous menu without making changes.

7.4.3 MENU TYPES

1. MAIN MENU

    The first menu displayed after selecting the card is the Main Menu. This menu provides access to the key functions related to the card. Press the key representing the menu item for access and a sub-menu will appear.

2. SUB-MENUS

    Each menu item will display either a sub-menu, or a list of options. Press the key corresponding to the desired choice.

7.4.4 MT107-103 MENUS

Following is the Main Menu available to the **MT107-103**. The Main Menu has 9 options that give access to key functions. Select an option from the Main Menu and then respond to the prompts to make changes to the card settings.

System prompts requiring specific values for volume, card number, etc. are not shown. See the examples following the menus for details.

MT107-103 MAIN MENU

1: MATRIX SETUP

2: SELECT MATRIX (1)

3: OUT ON/OFF

4: CONNECT (IN?? OUT??)

5: SIGNAL DETECT

6: VERSION

7: STATUS

8: HELP

9: SAVE CURRENT SETTINGS

ESC: GO BACK

7.4.5 MENU MODE EXAMPLES

All Menu Mode examples assume an **MT107-103** is installed in slot 8 of U0.

NOTE: The communication software you use may echo each character as it is typed when entering numeric values (not selecting menu items). For example, entering a value of 03 may appear as 0033 on the screen.

1. **Define Matrix 1**

    Starting from a blank Terminal Window, follow the keystrokes below to define and select Matrix 1 as a 64x64 matrix.

Enter	List available systems
0	Select unit U0
08	Select **MT107-103** in slot 8
1	Select MATRIX SETUP
1	Select SET MATRIX NUMBER
1	Set matrix number to 1
2	Select SET NUMBER OF INPUTS
64	Set 64 inputs
3	Select SET NUMBER OF OUTPUTS
64	Set 64 outputs
4	Select SET INPUT OFFSET
00	Set no input offset
5	Select SET OUTPUT OFFSET
00	Set no output offset
6	Select SET CHANNEL WIDTH
01	Set channel width to 1
7	Select SET CHANNEL SPACING
00	Set channel spacing to 0
8	Select SAVE CONFIGURATION
1	Select YES
ESC	Return to previous menu
ESC	Return to the Main Menu

2. Connect Input 1 to Output 1

Starting from the **MT107-103**'s Main Menu, connect Input 1 to Output 1. Follow the keystrokes below.

4	Select the CONNECT menu
1	Select SELECT INPUT
01	Set input 01
2	Select SELECT OUTPUT
01	Set output 01
3	Select SWITCH to make connection
	The Main Menu is redisplayed.

3. Verify signal on Input 1 and Output 64

Starting from the **MT107-103**'s Main Menu, check Input 1 and Output 64 for valid signals. Follow the keystrokes below.

5	Select SIGNAL DETECT
1	Select SELECT INPUT
01	Enter input number 1
	The card checks for a signal and updates the value displayed in parentheses.
2	Select SELECT OUTPUT
64	Enter output number 64
	The card checks for a signal and updates the value displayed in parentheses.
3	Select CHECK SIGNAL
	Each time 3 is pressed, the card checks for the signals and redisplays the status.
ESC	Return to the Main Menu

4. Turn off all outputs.

Starting from the **MT107-103** Main Menu, set all outputs off. Follow the keystrokes below.

3	Select OUT ON/OFF menu
2	Select ALL OUTPUTS OFF
	The Main Menu is redisplayed.

TROUBLESHOOTING GUIDE   8

We have carefully tested and have found no problems in the supplied **MT107-103.** However, we would like to offer suggestions for the following:

8.1 LED IS NOT LIT

Cause 1: **The card cage is not plugged in.**

Solution: Plug in the card cage. If the LED lights, the problem is solved. If the LED is still not on, see Cause 2.

Cause 2: **The card is not plugged in all the way.**

Solution: Push the card in all the way. If the LED is still not on, see Cause 3.

Cause 3: **The card cage slot has a problem.**

Solution 1: Test the card in other slots. If the slot was damaged, the card may work in other slots. If other slots work and the LED lights, the problem is the card cage slot and it may require service. Call ALTINEX at (714) 990-2300. If the other slots do not work and the LED is still not lit, see Solution 2.

Solution 2: Take any other known good card with an LED and verify that the slot used is good by seeing if the other card's LED lights in that slot. If it lights, then the original card may be the source of the problem. Call ALTINEX at (714) 990-2300.

8.2 LED IS BLINKING RED

Cause 1: **The CPU on the card is not working properly.**

Solution 1: Look at the card and verify that there is no damage. If there is no damage, see Solution 2.

Solution 2: Verify that all ICs are seated in their sockets. If the LED is still blinking red, see Cause 2.

Cause 2: **The card and its serial device are not communicating.**

Solution: Turn the system off and then back on again. If there is still an error, call ALTINEX at (714) 990-2300.

8.3 NO SOUND

Cause 1: **The source has a problem.**

Solution: Check the source and make sure that there is a signal present and all source connections are correct. If the source is working and there is still no sound, see Cause 2.

Cause 2: **The card output is not selected.**

Solution: Select the card output. See RS-232 accessible commands in Section 7. If no sound is present, see Cause 3.

Cause 3: **Cable connections are incorrect.**

Solution: Make sure that the cables are properly connected and that the continuity and wiring are good. If there is still no sound, see Cause 4.

Cause 4: **The receiving device has a problem.**

Solution: Make sure the receiving device is powered and is turned on. If there is still no sound, please call ALTINEX at (714) 990-2300.

ALTINEX POLICIES 9

9.1 LIMITED WARRANTY/RETURN POLICIES

Please see the ALTINEX website at www.altinex.com for details on warranty and return policies.

9.2 CONTACT INFORMATION

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